UDC 621.394.144

USSR

AKIMOV, A. YE., BOBNOTOV, N. N., KOLTYSHEVA, G. V., and MIRONOVA, L. A.

"Optimization of the Synchronization Process in Discrete Message Transmission Systems"

Moscow, Elektrosvyaz', No 11, 1970, pp 61-66

Abstract: The authors conduct a heuristic analysis of the synthesis of an ideal synchronization process. Possible approaches are considered for realizing ideal synchronization for Gaussian channels and for channels with fading. Synchronization accuracy characteristics are calculated along with false synchronization probability and the optimal thresholds for the synchrosignal receiver. The authors thank K. A. Meshkovskiy for his interest in the article. Original article: five figures, one table, 13 formulas, and 10 bibliographic entries.

USSR

UDC 541.124+541.127+661.718.1

CHEBOTAREVA, E. G., POBEDIMSKII, D. G., KOLUBAKINA, N. S., MUKMENEVA, N. A., KIRPICHNIKOU, P. A., AKHMADULLINA, A. G., Kazan Chemical Technology Institute imeni S. M. Kirova

"Kinetics of Reaction of Phosphites With Cumol Hydroperoxide"

Moscow, Russian, Kinetika i kataliz, Vol 14, No 4, Jun-Aug 73, pp 891-895

Abstract: The kinetics were studied and the rate constants determined for the reaction of various aliphatic and aromatic phosphites with cumol hydroperoxide in benzene. The rate constants did not change with a reaction rate change of 4 orders of magnitude, which indicates the absence of kinetic bonds. The reaction was first order with respect to each component. The aromatic phosphites were less reactive than the aliphatic, possibly because of polar effects. Analysis of the data on competition between the phosphite-hydroperoxide reactions and the spontaneous disintegration of hydroperoxides at 200°C in molten polymers indicated that phosphites suppress confluent branching.

1/1

USSR

UDC 681.325.65

KOLUPANOVICH, A. V.

"Coincidence Circuit"

USSR Author's Certificate No 309463, Cl. H 03 k 19/08, filed 23 Jun 69, published 7 Oct 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, May 72, Abstract No 5B136P)

Translation: There are well-known devices which contain two pairs of series-connected transistors of the p-n-p and n-p-n type. The proposed device differs from these in that the transistors of the first pair are connected on the circuit of emitter followers, the bases of the p-n-p and n-p-n type transistors of the second pair are connected to the emitters of the first pair of transistors, the collectors are connected through the resistors to feed bars, and the emitters are connected to each other. This makes it possible to expand the functional capabilities of the device.

1/1

USSR UDC: 620.179.15

GORBUNOV, V. I., SVIRYAKIN, D. I., BUKREYEV, V. G., KOLUPAYEV, A. N., YEGORENKO, Yu. A., Scientific Research Institute of Electronic Internal Inspection Affiliated With Tomsk Polytechnical Institute

"Radiation-Type Internal Inspection Units for Checking Materials and Parts"

Sverdlovsk, Defektoskopiya, No 3, May/Jun 71, pp 112-117

Abstract: The paper presents block diagrams and gives descriptions of some devices based on radiation methods of internal inspection. The basic technical characteristics of the devices are given, their advantages and disadvantages are noted, and recommendations are made on using them. Four figures, bibliography of three titles.

1/1

USSR

UDC: 532.782+541.6

KOLUPAYEV, V. F., KOSHKIN, N. I.

"Concerning the Problem of the Speed of Ultrasound in Supercooled Liquids"

V sb. Primeneniye ul'traakust. k issled. veshchestva (Application of Ultraacoustics to the Study of Matter--collection of works), vyp. 25, Moscow, 1971, pp 246-248 (from RZh-Fizika, No 6, Jun 72, Abstract No 6Ye163)

Translation: The temperature dependence of the speed of ultrasound in thymol and salol is measured. Inaccuracies in previous measurements by Labovskiy and Silivinskiy are noted (RZh-Fiz 1968, 11Ye145). The temperature coefficient of velocity does not change in thymol as the temperature passes through the melting point, whereas a slight break is observed in the case of salol which is attributed to development of small crystals in the supercooled state. T. Kh.

1/1

USSR

UDC 621.791

YAROVINSKIY, Yu. L., Candidate of Technical Sciences, PANIN, A. V., Engineer, and KOLUPAYEV, Yu. F., Engineer

"Investigation of the Influence of Multipass Welding Upon the Mechanical Properties of Welded Seams of Titanium Alloys VT6s and VT14"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, No 5, 1972, pp 128-134

Abstract: The article deals with an experimental investigation of the relationship of the mechanical properties of welded seams to the number of welding passes in the production of spherical containers from titanium alloys VT6s and VT14 by means of the newly introduced technique of multipass argon-arc welding by a submerged arc without dressing the edges. It is shown that considerable weakening of the welded seam does not take place, and the plastic characteristics do not change, while the observed grain increase does not exert a significant influence upon the mechanical properties of the welded seams. 1 figure. 4 tables.

1/1

USSR UDC: 8.74

KOLYADA, A. A., FILIPOVETS, F. S.

"On Finding the Bases of Systems of Residual Classes"

Minsk, Teoriya i primeneniye mat. mashin--sbornik (Theory and Application of Mathematical Machines--collection of works), Belorussian University, 1972, pp 16-28 (from RZh-Kibernetika, No 5, May 73, abstract No 5V749 by the authors)

Translation: The conventional mathematical apparatus for finding specific systems of residual classes with respect to predetermined weights, including negative ones, is generalized and improved. Arguments are presented which prove the effectiveness of this apparatus.

1/1

USSR UDC: 8.74

KOLYADA, A. A.

"Range of Definition of Operations in Rankless Systems of Residual Classes"

Minsk, Teoriya i primeneniye mat. mashin--sbornik (Theory and Application of Mathematical Machines--collection of works), Belorussian University, 1972, pp 28-36 (from RZh-Kibernetika, No 5, May 73, abstract No 5V751 by the author)

Translation: A theoretical basis is constructed for the so-called rankless system of residual classes. A series of properties is found for the region of definition of operations relating to structure, number of elements and other of its aspects. The question of membership of a number in set M is considered in detail, which enables solution of the overflow problem in rankless systems of residual classes.

1/1

USSR UDC: 8.74

KOLYADA, A. A.

"On Overflow During Addition in Rankless Systems of Residual Classes"

Vestn. Belorus. un-ta (Belorussian University Herald), 1971, ser. 1, No 3, pp 32-34 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V946)

Translation: A scheme is presented for determining the presence or absence of overflow during addition in rankless systems of residual classes. The scheme is illustrated by examples. Author's abstract.

1/1

USSR

UDC: 681.3

KOLYADA, A. A.

"On Rankless Systems in a Systen of Residual Classes"

Vestn. Beloruss. un-ta (Belorussian University Herald), 1971, ser. 1, No 2, pp 37-38 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V797)

Translation: Using certain auxiliary formulas and two lemmas, the author formulates the necessary and sufficient conditions that a given system of residual classes will be rankless. The results are illustrated by examples. V. Mikheyev.

1/1

USSR UDC 621.791.019:546.17

ZUBCHENKO, A. S., L'vov Polytechnical Institute, TIMOFEYEV, M. M., KAZIMIROVSKAYA, YE. L., Central Scientific Research Institute of Technology and Machine Building, and KOLYADA, A. A., (VNIIPTKhimmach)

"Effect of Nitrogen on Cold Brittleness of Heat-Resistant Kh25Yu5 Steel"

Kiev, Avtomaticheskaya Svarka, No 9, Sep 70, pp 8-9

Abstract: The effect of nitrogen on the cold brittleness of 220 x 120 x 30 mm samples from a metal fused in an open induction furnace was investigated. The nitrogen content in the fused metal was controlled by introducing nitrided ferrochromium into the crucible. The chemical composition and mechanical properties of the tested metal are presented in tables. They show that an increase in nitrogen content in the Kh25Yu5 steel substantially reduces its strength and impact strength. The dependence of impact strength and mechanical properties on test temperature, and the effect of nitrogen on the critical temperature of the transition of the steel into the brittle state are shown in graphs. It can be assumed that the temperature of equilibrium nitrogen concentration in the solid solution of Kh25Yu5 steel coincides with the critical temperature of the transition of the steel into a brittle state.

1/1

1/2 044 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--WELDING OF HEAVY GAGE STEEL OKH23N28M3D3T -U-

AUTHOR-(03)-ZUBCHENKO, A.S., YERNILLOV, V.A., KOLYADA, A.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. NEFT. MASHINOSTR. 1970, (3), 30-1

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--AUSTENITIC STEEL, WELDING ELECTRODE, ARC WELDING, NONDESTRUCTIVE TEST, STEEL WELDING, WELDING INSPECTION, CHEMICAL COMPOSITION, TENSILE STRENGTH, SULFURIC ACID, PHOSPHORIC ACID, CORROSION RESISTANT STEEL, IMPACT STRENGTH/(U)OKH23N28M3DT AUSTENITIC STEEL, (U)OKH23N28M3D3T WELDING ELECTRODE, (U)OZL17U WELDING ELECTRODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1460 STEP NO--UR/0314/70/000/003/0030/0031

CIRC ACCESSION NO--AP0109520
UNCLASSIFIED

2/2 044 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109520

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STABILIZED AUSTENITIC STEEL OF THE OKH23N28M3D3T GRADE EXHIBITS A HIGH CORROSION RESISTANCE TO H SUB2 SO SUB4, H SUB3 PO SUB4, AND SULFIDIC SOLNS. BUT IS MORE SUSCEPTIBLE TO WELDING INDUCED HOT CRACKING THAN ARE AUSTENITIC STEELS OF THE NONTRANSITION CLASS. HOT CRACKING AND (OR) INTERCRYST. CORROSION ARE FREQUENTLY ENCOUNTERED IN WELDED JOINTS ON PLATES IS GREATER THAN 20 MM THICK. TO IMPROVE THE QUALITY OF WELDS ON HEAVY GAGE STEEL, A SERIES OF MANUAL AND AUTOMATIC WELDING TESTS USING VARIOUS COM. AND LAB. PREPD. WELDING ELECTRODES WAS PERFORMED ON 45 AND 50 MM THICK PLATES OF THE OKH23N28M3D3T STEEL (CONTG. C 0.06, SI 0.53, MN 0.32, S 0.007, P 0.026, CR 23.1, NI 27.0, CU 2.79, MO 2.7, AND TI 0.73PERCENT AND EXHIBITING AN ULTIMATE TENSILE STRENGTH OF 69 KG PER MM PRIME2 AND AN IMPACT STRENGTH OF 22 KG-M PER CM PRIME2). AUTOMATIC WELDING BY OKH23N28M3D3T ELECTRODES UNDER AN OXIDIZING, CERAMIC FLUX YIELDED UNSATISFACTORY RESULTS, OWING TO THE OCCURRENCE OF DEEP, PROPAGATING CRACKS. SEAMS WELDED BY THE OZL-17U ELECTRODES (OF A COMPN. SIMILAR TO THAT OF THE BASE METAL, EXCEPT FOR MN 3.06, TI 0.15, AND NB 0.45PERCENT) FAILED IN TESTS FOR INTERCRYST. CORROSION. SOUND AND CORROSION RESISTANT HEAVY GAGE WELDS OF SATISFACTORY MECH. PROPERTIES MAY ONLY BE OBTAINED BY MANUAL ARC WELDING UNDER AR BY USING OKH23N28M3D3T OR SIMILAR ELECTRODES OF 3-4 MM DIAM. PARTS OF HEAT EXCHANGERS FOR H SUB2 SO SUB4 SHOULD BE WELDED BY THIS METHOD.

UNCLASSIFIED

K

UDC 621.791.019

USSR

TIMOFEYEV, N. A., ZUBCHENKO, A. S., KOLYADA, A. A., PAKHOMEDZE, V. A., and ROMANENCHUK,

"Cold Crack Formation in Ferrite Steel Welding"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 70, pp 9-12

Abstract: Several types of steel are mentioned as being suitable for [illegible] requiring high anti-corrosion and anti-thermal properties. These include the OKh23S2Yu and Kh25Yu5 types, the first of which is known in foreign countries under the name of Sikhromal-12. The defect of these steels is that they are poorly resistant to cold cracks under welding. The purpose of this paper is to investigate the causes of this defect and to study the mechanism of formation of the cracks. Specimens used for the research were these two types of steel, both of which were smelted in open induction furnaces under slag. The OKh23S2Yu was hammered after casting into sheets measuring 12 x 120 x 300 mm, while the Kh25Yu5 specimens were studied in cast form. A table of the chemical compositions of both is given. The authors find a dependence between the temperature [illegible] of the crack formation in welds of the two steels and the temperature [illegible] of the steels to the brittle state. They [illegible]

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USSR

TIMOFEYEV, M. M., et al, Avtomaticheskaya Svarka, No 10, Oct 70, pp 7-12

a method of welding ferrite steel involving the use of preliminary and accompanying heating to a temperature exceeding the temperature of the transition to the brittle state near the welded seam. Tempering directly after the welding makes it possible to remove the remaining stresses which cause the formation of the cracks. They assert also that the critical temperature of the transition to the brittle state can serve as a criterion of the weldability of ferrite steels.

2/2

USSR

UDC 542.938.546.791.4

GLEBOV, V. A., KLYGIN, A. Ye., SMIRNOVA, I. D., and KOLYADA, N. S.

"An Investigation of the Hydrolysis of Tetravalent Uranium"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 17, No 12, Dec 72, pp 3312-3316

Abstract: By applying the method of spin echo, the effects of the pH and the temperature on the velocity of longitudinal relaxation of protons in $HClO_4$ solutions of U(IV) were studied. It was shown that as a result of hydrolysis an increase took place in the frequency of exchange of H_2O molecules in the hydrate shell of U(IV) and that this increase affected the velocity of relaxation of protons in the solutions. Spectrophotometric measurements at various values of the pH of the absorption at the wavelength 548 nm that is characteristic for the U^{4+} ion were also carried out. Both measurements of the nuclear magnetic resonance, which gave information of the exchange of H_2O molecules in hydrolysis (cf. Glebov et al, Zh. Neorg. Khim., 15, 1332, 1970; 17, 1175, 1972), and determinations of optical densities at 548 nm, which yielded data on the concentration of free U^{4+} ions, indicated that in the pH range studied (0 - 1.97) hydrolysis of the U^{4+} ions proceeded by the reaction $U^{4+} + H_2O \rightarrow UOH^{3+} + H^+$. The constant of formation of the monohydrate complex UOH^{3+} was 0.052 ± 0.003.

1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--SPECTROPHOTOMETRIC STUDY OF COMPLEXING IN AN IRON,III,NITRATE,NITRIC ACID,WATER SYSTEM -U-

AUTHOR-(05)-KLYGIN, A.YE., SMIRNOVA, I.D., NIKOLSKAYA, N.A., KOLYADA, N.S., LEKAYE, V.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 753-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECTROPHOTOMETRIC ANALYSIS, IRON COMPLEX, NITRATE, NITRIC ACID, AQUEOUS SOLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/2028 STEP NO--UR/0078/70/015/003/0753/0756

CIRC ACCESSION NO--AP0132285

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132285

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRESENCE OF FE PRIME3 POSITIVE, FE(NO SUB3) SUB3 .HNO SUB3 (I), AND FE(NO SUB3) SUB3 .3HNO SUB3 (II) IN FE(NO SUB3) SUB3 HNO SUB3 H SUB2 O SYSTEM WAS CONFIRMED SPECTROPHOTOMETRICALLY. MOLAR ABSORPTION COEFFS. OF I AND II AT 390, 400, AND 410 M MU ARE GIVEN. CONSTS. OF I AND II FORMATION ARE IN THE REGION OF 10 PRIME NEGATIVE2 AND 10 PRIME NEGATIVE3, RESP.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--COMPLEXING OF URANYL AND LANTHANUM IONS WITH ARSENAZO III IN PERCHLORIC ACID SOLUTIONS -U-

AUTHOR-(03)-KLYGIN, A.YE., ZAVRAZHNOVA, D.M., KOLYADA, N.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 739-44

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECTOSCOPIC ANALYSIS, METAL COMPLEX COMPOUND, LANTHANUM COMPOUND, URANIUM COMPOUND, PERCHLORIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1611 STEP NO--UR/0078/70/015/003/0739/0744

CIRC ACCESSION NO--AP0112605

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112605

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTROSCOPIC STUDY REVEALED THAT UO SUB2 PRIME2 POSITIVE FORM WITH ARSENAZO III (H SUB8 R) TERNARY COMPLEXES (UO SUB2(CLO SUBR)SUB2 H SUB8 R) AND (LA(CLO SUB4)SUB2(H SUB8 R)) PRIME POSITIVE. THESE COMPDS. HAVE COMPLEX FORMATION COSTS. EQUAL TO 3.53 TIMES 10 PRIME3 AND 42.5 RESP., AND, AT 650 MMU, THEY HAVE MOLAR ABSORPTIVITIES 6.67 TIMES 10 PRIME4 AND 6.52 TIMES 10 PRIME4, RESP.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SPECTROPHOTOMETRIC STUDY OF THE COMPLEXING OF RARE EARTH ELEMENTS IN NITRATE SOLUTIONS -U-

AUTHOR-(05)-KLYGIN, A.YE., SMIRNOVA, I.D., KOLYADA, N.S., MALKINA, YE.N., GERTSEVA, A.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 622-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECTROPHOTOMETRIC ANALYSIS, NITRATE, NITRIC ACID, RARE EARTH METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1608 STEP NO--UR/0078/70/015/003/0622/0628

CIRC ACCESSION NO--AP0112602

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112602

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HNO SUB3 SOLNS. OF LN (ND, PR, EU, DY, HO, ER, AND YB) NITRATES CONTAIN LN PRIME3 POSITIVE, LN(NO SUB3) SUB3 .HNO SUB3, AND LN(NO SUB3) SUB3 .3HNO SUB3. COMPLEXING IN LN PRIME3 POSITIVE-HNO SUB3-H SUB2 O SYSTEMS WAS DETD. SPECTROPHOTOMETRICALLY AND FORMATION CONSTS. WERE CALCD. BY THE LEAST SQUARES METHOD. THE MECHANISM OF LN PRIME3 POSITIVE EXTN. BY BU SUB3 PO SUB4 FROM HNO SUB3 SOLN. IS DISCUSSED. IT IS ASSUMED THAT AT THE CONDITIONS WHERE LN(NO SUB3) SUB3 .HNO SUB3 FORMS AT THE HIGHEST YIELD, THE DISTRIBUTION COEFF. D OF LN PRIME3 POSITIVE HAS THE LOWEST VALUE. THE MARKED INCREASE OF D AT HNO SUB3 CONCNS. LARGER THAN 5M IS DUE TO THE FORMATION OF LN(NO SUB3) SUB3 .3HNO SUB3 WHICH IS EXTD. BY BU SUB3 PO SUB4.

UNCLASSIFIED

USSR

UDC 546.791.6.541.49.546.65.546.137

KLYGIN, A. YE., ZAVRAZHNOVA, D. M., KOLYADA, N. S.

"Complexation of Uranyl and Lanthanum Ions with Arsenazo III in Perchloric Acid Solutions"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 15, No 3, 1970, pp 739-744

Abstract: A spectrophotometric study was made of the complexation of uranyl and lanthanum with arsenazo III in perchloric acid solutions. It was shown that in the system studied ternary complex compounds of composition $UO_2(ClO_4)_2H_8R$ and $La(ClO_4)_2(H_8R)^+$ are formed. These compounds have formation constants $(3.53\pm0.36)\cdot10^3$ and $(4.25\pm0.10)\cdot10^1$ and molar light extinction coefficients $(6.67\pm0.28)\cdot10^4$ and $(6.52\pm0.09)\cdot10^4$ at 650 nanometers, respectively.

1/1

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--REACTION OF AZO DERIVATIVES OF CHROMOTROPIC ACID WITH PERCHLORIC AND NITRIC ACIDS -U-

AUTHOR-(03)-KLYGIN, A.YE., KOLYADA, N.S., ZAVRAZHNOVA, D.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 384-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AZO COMPOUND, ARSENIC COMPOUND, SULFONIC ACID, NAPHTHALENE, SPECTROPHOTOMETRIC ANALYSIS, COMPLEX COMPOUND, PERCHLORIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1148 STEP NO--UR/0078/70/015/002/0384/0389

CIRC ACCESSION NO--AP0136568

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 012

CIRC ACCESSION NO--AP0136568

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTIONS OF HCLO SUB4 AND HNO SUB3 WITH CHROMOTROPIC ACID DERIVS. (2,7,BIS(2,SULFO,4,NITROPHENYLAZO),1,8,DIHYDROXY, 3,6,NAPHTHALENEDISULFONIC ACID (I), 2,(2,ARSONOPHENYLAZO),1,8, DIHYDROXY(2,SULFOPHENYLAZO),3,6,NAPHTHALENEDISULFONIC ACID (II), 2,7,BIS(2,SULFOPHENYLAZO),1,8,DIHYDROXY,3,6,NAPHTHALENEDISULFONIC (III), OR 2,(2,ARSONOPHENYLAZO),1,8,DIHYDROXY,3,6, NAPHTHALENEDISULFONIC ACID) (IV)) WERE STUDIED SPECTROPHOTOMETRICALLY. IN EACH CASE, UNDISSOCD. ACID MOLS. WERE ADDED TO AZO GROUPS OF I-IV COMPDS. THE MOLAR ABSORPTIVITY (EPSILON) AND COMPLEXING CONSTS. (K SUB1) WERE (COMPD., EPSILON (IN MMU), K) FOR HCLO SUB4 COMPLEXES: SHOWN ON MICROFICHE.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--COMPLEXING IN THE COPPER II, ETHYLENEDIAMINETETRAACETIC ACID, WATER SYSTEM -U-

AUTHOR-(04)-LEKAYE, V.A., KLYGIN, A.YE., SMIRNOVA, I.D., KOLYADA, N.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1294-300

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ETHYLENEDIAMINE, COPPER COMPLEX, SPECTROPHOTOMETRIC ANALYSIS, NMR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0923 STEP NO--UR/0078/70/015/005/1294/1300

CIRC ACCESSION NO--AP0136354

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136354

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLEXING IN THE CU(II),EDTA, (H SUB4 L), H SUB2 O SYSTEM WAS STUDIED BY SPECTROPHOTONETRIC AND NMR RELAXATION METHODS. THE FORMATION CONST. OF CUHL, AND ITS DEPROTONATION CONST., (DETD. BY THE N. P. KOMAR'S METHOD, 1954) ARE 76 TIMES 10 PRIME8 AND 1.14 TIMES 10 PRIMENEGATIVE3, RESP.

UNCLASSIFIED

USSR UDC: 53.07/.08+53.001.5

KOLYADA, V. M., ZLOBIN, V. G., All-Union Scientific Research Institute of Analytical Instrument Building

"A Method of Measuring the Transverse Distribution of Ion Beam Density"

USSR Author's Certificate No 306591, Division H, filed 12 Dec 70, published 21 Jul 71 (from RZh-Fizika, No 4, Apr 72, Abstract No 4A488 P)

Translation: A method is proposed for measuring the transverse distribution of ion beam density. The method is distinguished by high resolution and is based on cathodic vaporization of a target. Resolution is increased by aiming the ion beam at a single-crystal or amorphous target, measuring the profile of the vaporization spot by the interference method, and determining the distribution of beam density from the depth of individual sections in the vaporized section. K. N. Korol'.

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USSR

UDC: 669.017:539.16.04

GAREER, R. I., KARASEV, V. S., KOLYADA, V. M., and FEDORENKO, A. I.

"Radiation Erosion and Damage to Certain Metals in the Field of Radiation of a Nuclear Reactor. Part II. Erosion with U^{235} Fission Fragments and Neutrons From a Reactor"

Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 406-410

Abstract: The erosion of atoms from the surface of single- and polycrystalline targets of several pure nonfissionable metals was studied as they were bombarded on the back side with U^{235} fission fragments (in contact with the target) and the flux of neutrons in a nuclear reactor. Since the path length of fragments was significantly less than the thickness of the targets, the removal of material from the targets resulted from "mechanical", not thermal processes, which is also confirmed by the anisotropy in the distribution of particles eroded from the single-crystals in sediment on the collectors. In polycrystalline targets, scattering and blocking of focusons and crowdions, and channeling of displaced atoms occur due to the intercrystalline boundaries and distortions of the lattice in the crystallites. Some of the atoms do not reach the surface of the collector. The total yield of eroded particles from polycrystals, measured from sediment on collectors, is 1.6 times less than the yield of particles from singlecrystals of the same elements. The distribution of particles on the collector is isotropic in the case of polycrystals, but not in the case of singlecrystals.

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USSR

UDC: 669.017:539.16.04

GARBER, R. I., KARASEV, V. S., KOLYADA, V. M., and FEDORENKO, A. I.

"Radiation Erosion and Damage to Certain Metals in the Field of Radiation of a Nuclear Reactor. Part I. Erosion by Fast Neutrons"

Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 400-406

Abstract: The authors studied the dependence of the intensity of erosion of atoms of certain metals on the summary dose of reactor radiation. The targets studied included single- and polycrystals of twenty-five elements: Be, B, Al, Si, Ti, Cr, Fe, Co, Ni, Cu, Zn, Ge, Zr, Nb, Mo, Ag, Cd, Sb, Ta, W, Au, Pb, Bi, Th, and U. It was established that the intensity of particle erosion from single crystals is higher than from polycrystals by 1.5-2.5 times. There is also a periodic variation of intensity of particle emission with atomic number of the element. The maximum intensity was observed for copper, zinc, silver, and gold. The intensity of erosion of single crystals decreases with increasing summary dose. A comparison of the angular distributions of atoms knocked from the surface of single- and polycrystalline targets by fast neutrons showed that the atoms leave the surface of the polycrystals isotropically, whereas they leave the surfaces of singlecrystals primarily in the directions of the densely packed rows of atoms in the crystal.

1/2

USSR

GARBER, R. I., et al., Atomnaya Energiya, Vol 28, No 5, May 70, pp 400-406

As the integral neutron dose is increased to 10^{15} - 10^{16} n·cm^{-2}, the angular distribution from singlecrystals no longer shows preferential directions.

1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--RADIATIVE DISPERSAL AND DAMAGE TO SOME METALS IN RADIATION FIELD OF NUCLEAR REACTOR. PART II. DISPERSAL BY FISSION FRAGMENTS OF PRIME235 U

AUTHOR-(04)-GARBER, R.I., KARASEV, V.S., KOLYADA, V.M., FEDORENKO, A.I.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. (USSR); 28: 406-10, MAY 1970

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--METAL, URANIUM ISOTOPE, ATOM, SINGLE CRYSTAL, POLYCRYSTAL, NEUTRON FLUX, ANGULAR DISTRIBUTION, NUCLEAR REACTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0556 STEP NO--UR/0089/70/000/028/0406/0410

CIRC ACCESSION NO--AP0137643

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R001401420009-0"

2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137643

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF A STUDY ARE DESCRIBED OF DISPERSAL OF ATOMS EMITTED FROM SURFACES OF SINGLE AND POLYCRYSTAL TARGETS OF 13 PURE UNFISSIONABLE METALS UNDER IRRADIATION FROM THE BACK SIDE BY FISSION FRAGMENTS OF PRIME235 U IN CONTACT WITH TARGETS AND NEUTRON FLUX IN THE NUCLEAR REACTOR. THE DISPERSAL YIELD AND ANGULAR DISTRIBUTION OF DISPERSED PARTICLES HAVE BEEN INVESTIGATED BY USE OF ACTIVE DEPOSITS OF DISPERSED ATOMS ON COLLECTORS, PLACED DURING IRRADIATION NEAR THE TARGET SURFACE. A PERIODIC DEPENDENCE OF THE DISPERSAL YIELD ON THE ATOMIC NUMBER OF TARGETS HAS BEEN OBSERVED. IT HAS BEEN SHOWN THAT COMBINED IRRADIATION OF POLYCRYSTAL TARGETS BY FISSION FRAGMENTS AND NEUTRONS FROM THE REACTOR DOES NOT RESULT IN SIGNIFICANT INCREASE OF THE DISPERSAL YIELD AS COMPARED WITH IRRADIATION BY NEUTRONS ONLY. IN THE CASE OF SINGLE CRYSTALS, COMBINED IRRADIATION RESULTS IN AN INCREASE OF THE DISPERSAL YIELD. FOR VARIOUS TARGETS, THE SINGLE CRYSTAL DISPERSAL YIELD IS HIGHER THAN IN THE CASE OF POLYCRYSTALS. AUTORADIOGRAPHICAL REGISTRATION OF ACTIVE DEPOSITS OBTAINED AS A RESULT OF DISPERSAL OF SINGLE CRYSTALS SHOW DISCRETE SPOTS WITH SYMMETRY CORRESPONDING TO THE ORIENTATION OF THE DISPERSION CRYSTAL SIDE. AS TO POLYCRYSTALS, THE DENSITY DISTRIBUTION OF PARTICLES ALONG COLLECTORS FOLLOWS THE COSINE LAW. RESULTS OF THE INVESTIGATION MAKE IT POSSIBLE TO ACCEPT THE HYPOTHESIS OF MECHANICAL, AND NOT THERMAL, PROCESS OF DISPERSAL OF ATOMS FROM THE TARGET SURFACES UNDER IRRADIATION BY FISSION FRAGMENTS.

UNCLASSIFIED

1/3 038 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--RADIATIVE DISPERSAL AND DAMAGE TO SOME METALS IN RADIATION FIELD OF NUCLEAR REACTOR PART I. DISPERSAL BY FAST NEUTRONS -U-

AUTHOR-(04)-GARBER, R.I., KARASEV, V.S., KOLYADA, V.M., FEDORENKO, A.I.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. (USSR): 28: 4006, MAY 1970

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SINGLE CRYSTAL, ENERGY SPECTRUM, NUCLEAR REACTOR, RADIATION DAMAGE, NEUTRON FLUX, IRRADIATION, POLYCRYSTAL, METAL, PARTICLE ACCELERATOR TARGET

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0554 STEP NO--UR/0089/70/000/028/0400/0406

CIRC ACCESSION NO--AP0137642

UNCLASSIFIED

2/3 . 038 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137642

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF A STUDY OF DEPENDENCE OF A DISPERSAL INTENSITY FOR SINGLE AND POLYCRYSTAL TARGETS ON A REACTOR IRRADIATION DOSE WITH NEUTRON FLUX 2.10 PRIME12 NCM NEGATIVE PRIME2 TIMES SEC NEGATIVE PRIME1. IT IS FOUND THAT THE YIELD OF DISPERSED PARTICLES FROM SINGLE CRYSTALS IS HIGHER THAN IN THE CASE OF POLYCRYSTALS. FOR SINGLE CRYSTAL AS WELL AS FOR POLYCRYSTAL TARGETS A PERIODIC DEPENDENCE ON DISPERSAL YIELD ON ATOMIC NUMBER OF THE TARGET ELEMENT OCCURS. WHILE THE IRRADIATION DOSE INCREASES, THE DISPERSAL INTENSITY IN THE CASE OF SINGLE CRYSTALS DECREASES BUT REMAINS HIGHER THAN THE DISPERSAL INTENSITY OF POLYCRYSTALS. IT IS SHOWN THAT PARTICLES FROM SINGLE CRYSTAL SURFACE ARE EMITTED MAINLY IN THE DIRECTIONS OF DENSELY PACKED ROWS OF ATOMS, WHILE FROM POLYCRYSTALS EMISSION IS ISOTROPIC. INCREASE OF THE IRRADIATION DOSE IS ACCOMPANIED BY LESSENING ANISTROPY IN THE PARTICLE YIELD FROM SINGLE CRYSTALS, LOWERING THEIR ENERGIES AND BROADENING THEIR ENERGY SPECTRUM. ENERGY SPECTRA OF PARTICLES FROM SINGLE AND POLYCRYSTALS ARE MEASURED. INFLUENCE OF ELECTRONIC SHELLS STRUCTURE ON THE YIELD OF DISPERSED PARTICLES FROM TARGETS AND THEIR ENERGY SPECTRA, IS OBSERVED AND INVESTIGATED. ATOMS OF ELEMENTS BELONGING TO THE FIRST SUBGROUP OF ANY PERIOD ARE EMITTED WITH HIGHER VELOCITIES THAN ATOMS OF ELEMENTS OF THE SECOND SUBGROUP BELONGING TO THE SAME PERIOD. THE MAXIMUM VALUE OF ENERGY (UP TO 650 EV) IS OBSERVED IN THE CASE OF ATOMS OF ELEMENTS WITH VERY WEAK DISPERSION PROPERTIES.

UNCLASSIFIED

3/3 . 038 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137642

ABSTRACT/EXTRACT--RESULTS OF THESE INVESTIGATIONS ARE INTERPRETED BY MEANS OF MECHANISMS OF FOCUSING COLLISIONS AND CANALIZING DISPLACED ATOMS IN THE CRYSTAL LATTICE OF TARGETS UNDER NEUTRON IRRADIATION IN THE REACTOR.

UNCLASSIFIED

USSR

UDC 612.384.6.01

KOLYADA, Yu. Ye., KORNIKOV, Ye. A., FAYNBERG, Ya. B.

"Creation of a Dense Electron Cloud in the Magnetic Field of an Open Trap"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 43, No 10, Oct 73, pp 2170-2172

Abstract: An experimental study is made of the possibility of creating an extended high-density electron cloud in the rising magnetic field of an open magnetic trap. It is shown that by using the induction method of accelerating electrons in the magnetic field it is possible to create a long-lived electron cloud with a deep potential well. By the use of a beam with energy of up to 5 kev and current of 3 amp in a magnetic field which rises to 1600 gausses in $4 \cdot 10^{-4}$ sec an electron cloud was produced with a length of 50 cm, electron density in the axial region of $2 \cdot 10^{11} cm^{-3}$, and a 200-kv potential well. The lifetime was 250 μs. The depth of the potential well is not the limiting value. It can be considerably increased by proper selection of gun design, anode voltage, and vacuum. The authors thank L. I. Bolotin for assistance in the work.

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USSR

KOVPIK, O. F., KORNILOV, YE. A., KOLYADA, YU. YE., SHAPIRO, V. D., and SHEVCHENKO, V. I.

"Electron-Beam Excitation of Low-Frequency Oscillations in a Hot Plasma Confined by a Mirror Machine"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 42, No 10, Oct 72, pp 2056-2061

Abstract: The article describes results of a study of the interaction of an electron beam with a hot plasma in a mirror machine and the heating of the plasma by ion-sound oscillations excited by the beam. The results indicate the following:

1. An electron beam effectively interacts with a hot plasma, exciting ion-sound instability.

2. Scattering of the beam electrons by the ion-sound oscillations and their capture by the mirror machine can result in the creation of large electrostatic potentials, the presence of which causes the appearance of centrifugal instabilities.

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USSR

KOVPIK, O. F., et al., Zhurnal Tekhnicheskoy Fiziki, Vol 42, No 10, Oct 72, pp 2056-2061

3. Effective ion heating is possible in the interaction of an electron beam with a hot plasma.

The authors thank YA. B. FAYNBERG for the suggested subject and for discussing the work, S. M. KRIVORUCHKO for helping in the measurements, and L. I. BOLOTIN for his interest in the work.

2/2

USSR

UDC 533.92:621.039.61

KOVPIK, O. F., KOLYADA, Yu. Ye., KORNILOV, Ye. A., LIFSHITS, Ye. V., NEKRASHEVICH, S. A.

"The Effect of External High-Frequency Modulation of an Electron Beam on Ion Heating Upon Interaction of the Beam With a Plasma"

Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mezhved. sb. (Plasma Physics and Problems of the Controlled Thermonuclear Fusion. Republic Interdepartmental Collection), 1972, No. 3, pp 15-23 (from RZh-Fizika, No 11, Nov 72, Abstract No 11G284)

Translation: The effect of external high-frequency beam modulation on the heating of ions and electrons in a magnetic trap under conditions of beam instability is investigated experimentally. Under beam modulation at a frequency less than the electron-plasma frequency there is observed an increase in the low-frequency fields with a simultaneous increase in both the temperature and the number of accelerated ions. It is hypothesized that acceleration of ions in fields of low-frequency oscillations, the excitation of which is caused by nonlinear interaction of high-frequency

USSR

KOVPIK, O. F., et al, Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mezhved. sb., 1972, No. 3, pp 15-23

oscillations, is of a stochastic nature. The experiment was conducted on an electron beam with an energy up to 20 kev and a current up to 20 a in a magnetic field of mirror configuration 3-1-3 kgauss.

2/2

KOLYADENKO, A. P.

JPRS 55932
9 May 72

FUNCTIONAL STATUS OF THE CARDIOVASCULAR SYSTEM IN THE ACUTE PERIOD OF ACCLIMATIZATION AT VOSTOK STATION

[Article by Ye. N. Biryukov, V.V. Buzhanov and A.P. Kolyadenko, 16th Soviet Antarctic Expedition; Leningrad, Informatsionnyy Byulleten' Sovetskoy Antarcticheskoy Ekspeditsii, Russian, No 81, 1971, signed to press 15 February 1970, pp 98-100]

The process of acclimatization to high altitude regions of the Antarctic is considerably more complex than at the coast (2). This is connected with the effects on the organism of supplemental factors, such as hypoxia and low temperatures.

Many studies have been made of assessment of the functional status of one of the main systems of the organism, the cardiovascular system, under the conditions of acclimatization, but they have not always been in mutual agreement in their assessment of the orientation of the process. Because of this it was considered of interest to assess the dynamics of indices of the functional status of the cardiovascular system, such as arterial and pulse pressure, and the rate of cardiac contractions during the first month's stay at Vostok Station, i.e. during the most acute acclimatization period. For this purpose 12 associates were examined on the second, seventh, fifteenth and thirtieth days of stay at the Station. The examinations were conducted under approximately uniform conditions. The data obtained were compared with the results of "background" examinations, performed before the wintering at the Antarctic station.

The results gave the following pictures: systolic blood pressure on the second day averaged 134 millimeters of mercury (variation range from 110 to 149 millimeters), which surpassed the average value obtained at the preliminary examination, 121 millimeters of mercury (113 to 140 millimeters). The diastolic pressure also was elevated; 86 millimeters, compared to an initial value of 80 millimeters. This pulse pressure, also, rose from 41 millimeters to 46 millimeters. Despite pronounced individual lability of these indices, the average level on the seventh and fifteenth days differed only slightly from that established on the second day, and was 133 and 135 millimeters for the systolic, and 88 and 89 millimeters of mercury for the diastolic pressure. It should be mentioned that the tendency toward level-ling of indices noted on the seventh day was again disrupted at the end of

KOLYADENKO, A. P.

JPRS 55932
9 May 72

PHYSICAL TRAINING AS A MEANS OF MAINTAINING WORK CAPACITY OF WINTER OBSERVERS UNDER THE CONDITIONS OF VOSTOK STATION

[Article by V.V. Bazhanov, Ye.N. Biryukov and A.P. Kolyadenko; Leningrad, Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii, Russian, No 81, 1971, signed to press 15 December 1970, pp 104-106]

The existence of humans under conditions prevailing at the intra-continental antarctic station Vostok is characterized by the unfavorable effects of a series of extreme factors on the organism. The major ones are: hypoxia (the station is situated at an altitude of 3,400 meters above sea level), low temperatures (down to -87 degrees Centigrade), the long polar night, the limited, almost confined medium of inhabitation and, finally, as a result of the latter, a certain degree of sensory deprivation.

It is known that physical strain, being a nonspecific biological stimulus, increases the resistance of the organism to the unfavorable effects of the most diverse factors of the environment.

During the period of operation of the Fourteenth Expedition at Vostok Station, physical training was used experimentally as a means of preventing asthenization of the organism. The group of trainees consisted of nine persons, with nine other persons who did not receive training. The conduct of training was planned with consideration of measures requiring great physical overloading. The training cycle was begun at the end of April and ended at the beginning of November. Exercises were performed once a day, for periods of 25 to 30 minutes.

The main training apparatus used was the "KST" combined trainer developed by the Institute of Medico-Biological Problems. The trainer consists of a program-command block, and load structure and combined structure. The trainer can imitate a bicycle passing over broken terrain and rowing. The programming feature permits varying the load in a broad range (from 200 to 2,000 kilograms per minute, with interval steps of 50 kilograms) at time characteristics of 15, 30 and 60 seconds.

A four-day cycle (3 : 1) was taken as the basic structural unit of the training process: on the first day loads were chosen that tend to maintain strength and both speed and strength, on the second maintaining strength and endurance, and on the third general endurance.

UDC 535.247.4 : 535.343

USSR

KOLYADIN, A. I., Doctor of Sciences, ALEKSEYEVA, K. G.

"A Method and Instrument for the Exact Measurement of Integral Light Absorption of High Transparency Glass"

Leningrad, Optiko-mekhanicheskaya promyshlennost', No. 2, Feb 71, pp 26-27

Abstract: The design of the FM-94 photometer is described that was developed to measure the coefficient of light absorption with an error not exceeding 0.01% per centimeter. It is noted that the technique and equipment currently used in industry to determine the coefficient of light absorption of optical glass can measure the transmission coefficient with an accuracy of 0.5% so that with its length of 10 centimeters it ensures a calculation of the coefficient of light absorption with an accuracy of 0.0005 or 0.05% per centimeter. This method has been in existence for two decades and does not answer the increasing requirements as to the transparency of optical glass, since glasses absorbing less than 0.05% per centimeter have been developed. An optical diagram of the two-channel photometer is given. An example was given of measurements of a sample of glass BK10 of length 11 cm and it was found that the coefficient absorption $k = (0.440 \pm 0.004)\%$ per cm.

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USSR

KOLYADIN, A. I., ALEKSEYEVA, K. G., Optiko-Mekhanicheskaya promyshlennost', No. 2, Feb 71, pp 26-27

The example showed that the FM-94 photometer can considerably raise the accuracy of measuring the coefficients of light absorption of glass. Tests of the instrument have shown that despite certain structural deficiencies, it is fully satisfactory for its purpose.

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SPV-2 HIGH SPEED SPECTROPHOTOMETER -U-

AUTHOR-(03)-GUREVICH, M.M., KOLYADIN, K.I., KOSYANENKO, V.A.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, OPTIKO MEKHANICHESKAYA PROMYCHLENNOST', NO 1, JAN 70, PP 32-33

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SPECTROPHOTOMETER, SPECTROPHOTOMETRY/(U)SPV2 SPECTROPHOTOMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0400 STEP NO--UR/0237/70/000/001/0032/0033

CIRC ACCESSION NO--AP0119343

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0119343

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A HIGH SPEED SPV-2 SPECTROPHOTOMETER, WHICH IS READY TO BE PRODUCED IN SERIES, IS BRIEFLY DESCRIBED. IT IS INTENDED FOR INVESTIGATING THE KINETICS OF CHEMICAL, PHOTOCHEMICAL, AND OTHER REACTIONS RELATED TO THE VARIATION OF SPECTRAL PROPERTIES OF SUBSTANCES TAKING PART IN THESE PROCESES. IT CAN ALSO BE USED FOR A HIGH SPEED SPECTROPHOTOMETRY OF INVARIABLE OBJECTS, AS FOR THE QUALITY CONTROL OF SERIAL PRODUCTION, FOR MATCHING OF CONCENTRATIONS IN CHEMICAL PRODUCTION ETC. A SCHEMATIC DIAGRAM OF THE INSTRUMENT AND A BLOC DIAGRAM OF THE EQUIPMENT ARE INCLUDED. THE TECHNICAL DATA AND CHARACTERISTICS ARE PRESENTED.

UNCLASSIFIED

USSR

UDC: 541.127:535.243.082

GUREVICH, M. M., KOLYADIN, K. M., LEYKIN, S.M.

"High-Speed Spectrophotometers for Investigation of Reaction Kinetics"

Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisi, 1971 pp 14-19 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1089 by V. S. Krasnova)

Translation: A description and diagram of the domestic SP-127M (SPV-2) high speed spectrophotometer is presented. This instrument is designed for investigation of the kinetics of chemical and biochemical reactions and rapid spectrophotometry of unchanged objects. The SP-127M is a two-channel spectrophotometer with a mirror monochromator and photoelectric recording. The spectral area of operation of the device is 250 - 1000 mμ, divided into 4 ranges: 250-470, 400-650, 600-850 and 800-1000. The FEU-39 is used for operation in the first 2 ranges, the FEU-28 is used for operation in the 600-1000 mμ range. The device has 2 operating speeds - 200 and 500 spectra per second. The device is equipped with an attachment for performance of photochemical reactions. The SP-154 spectrophotometer with spectral range 350-700 mμ and 3 operating speeds - 100, 200 and 400 spectra per second - is based on the

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USSR

UDC: 541.127:535.243.082

GUREVICH, M. M., KOLYADIN, K. M., LEYKIN, S. M., Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisi, 1971, pp k4-k9 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1089 by V. S. Krasnova)

SP-127M. The photometer includes an integrating sphere, allowing reactions involving production of a sediment to be studied. 3 figures; 5 biblio refs.

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1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--EFFECT OF SOME FACTORS ON THE CRYSTALLIZATION OF RUBBERS FROM CIS ISOPRENE RAW RUBBER -U-

AUTHOR-(03)-RAKHMAN, M.Z., KOLYADINA, N.G., VEKSELMAN, YE.I.

COUNTRY OF INFO--USSR

SOURCE--KAUCH. REZINA 1970, 29(2), 9-10

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ISOPRENE, CRYSTALLIZATION, BUTADIENE STYRENE RESIN, FILLER, METAL OXIDE, ELASTOMER, CARBON BLACK, ZINC OXIDE, CALCIUM CARBONATE, SULFIDE/(U)U333 CARBON BLACK, (U)DG100 CARBON BLACK, (U)PM70 CARBON BLACK

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0456 STEP NO--UR/0138/70/029/002/0009/0010

CIRC ACCESSION NO--AP0119392

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119392

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF NONCRYSTG. BUTADIENE STYRENE RUBBER ADDITIVES, FILLERS, METAL OXIDES, AND TRANS ISOMER CONTENT IN CIS ISOPRENE RUBBER (I) ON THE CRYSTN. OF I ELASTOMERS WERE STUDIED. THE CRYSTALLIZABILITY OF I ELASTOMERS DECLINED WHEN THE TRANSISOMER CONTENT WAS LARGER THAN OR EQUAL TO 30PERCENT. I ELASTOMERS FILLED WITH CARBON BLACK U-333, DG-100, AND PM-70 WERE MORE READILY CRYSTALLIZABLE THAN ELASTOMERS FILLED WITH ACTIVATED CACO SU83. THE CRYSTN. OF I ELASTOMERS WAS MOST INHIBITED IN THE PRESENCE OF ZNO, PRESUMABLY DUE TO THE INCREASED CONTENT OF POLYSULFIDE BONDS. FACILITY: LENINGRAD. FILIAL NAUCH.-ISSLED. INST. REZIN. PROM., LENINGRAD, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CONCENTRATION FUNCTION OF THE DIFFUSION OF READILY CONDENSED GASES THROUGH RUBBERS -U-

AUTHOR-(04)-SHOROKHOVA, N.V., VASENIN, R.M., KOLYADINA, N.G., IOSSEL, G.F.

COUNTRY OF INFO--USSR

SOURCE--KAUCH. REZINA 1970, 29(3), 21-3

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PERMEABILITY MEASUREMENT, GAS ABSORPTION, GAS DIFFUSION, AMMONIA, FREON, SYNTHETIC RUBBER/(U)F12 FREON, (U)F22 FREON, (U)SKMS10 SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0531 STEP NO--UR/0138/70/029/003/0021/0023

CIRC ACCESSION NO--AP0119450

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119450

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PERMEABILITY COEFF. (P), THE GAS ABSORPTION COEFF. (SIGMA), AND THE GAS DIFFUSION COEFF. (D) OF NH SUB3, FREON F-12, AND FREON F-22 WITH RESPECT TO UNFILLED SKMS-10 SYNTHETIC RUBBER MEMBRANES ARE DEPENDENT ON THE PARTIAL GAS PRESSURE (OR CONCN.) IN GAS MIXTS. P, SIGMA, AND D INCREASE LINEARLY WITH NH SUB3 PRESSURE AND NONLINEARLY WITH F-12 OR F-22 PRESSURE. THE CALCD. P VALUES FROM THE RELATION P EQUALS DSIGMA AND THE EXPTL. P VALUES COINCIDED. FACILITY: LENINGRAD. FILIAL NAUCH.-ISSLED. INST. REZIN. PROM., LENINGRAD, USSR.

UNCLASSIFIED

UDC 669.721.472(088.8)

USSR

YELIN, N. M., BURDAKOV, YU. M., KOLOMIYTSEV, A. V., CHALBAYEV, I. A., KOLYADZIN, A. A., TSIDVINTSEV, G. V., and BIBIK, G. P., Ust'-Kamenogorsk Titanium-Magnesium Combine imeni 50th Anniversary of October

"Vacuum Ladle"

USSR Author's Certificate No 254104, filed 28 Nov 66, published 5 Jan 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G139 P)

Translation: A design is proposed for vacuum ladle which consists of a lock and a tap hole. To simplify the servicing of the magnesium electrolytic reduction cells, it is equipped with a teeming device, which is made in the shape of a branch connection with botton closing device mounted on the lid of the ladle.

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USSR

UDC 621.79.011

KOLYAKIN, N. N., Voroshilovgrad Diesel Locomotive Plant, and YAROVINSKIY, L. M., Central Scientific Research Institute of Heavy Machine Building

"Thermal Arc Characteristics in Various Methods of Fusion Welding"

Kiev, Avtomaticheskaya Svarka, No 12, Dec 70, pp 4-6

Abstract: This paper investigates the thermal processes for various welding methods by fusion under identical experimental conditions. The experiments were done with a special calorimeter which permits building up a roller on the specimen directly in the vessel, thus reducing heat losses in building up the roller, and then carrying it over to the calorimeter as was done in earlier experiments. A cross-sectional drawing of the special calorimeter is given. The specimens used in the experiments were made of type St.3kp carbon steel (0.19% C, 0.52% Mn, 0.02% P, and 0.034% S) and had the dimensions of 140 x 80 x 18 mm. The parameters of the welding methods are presented in the form of two tables.

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1/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--TEMPERATURE DEPENDENCE OF THE VAPOR PRESSURE OF TRISDIETHYLAMINOCHLOROGERMANE AND TRIETHYLDIETHYLAMINOGERMANE -U-

AUTHOR-(03)-GONCHAROV, A.K., KARAPETYANTS, M.KH., KOLYAKOVA, G.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 832

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--VAPOR PRESSURE, ENTROPY, CYCLOHEXANE, THERMAL EFFECT, MATHEMATIC EXPRESSION, AMINE DERIVATIVE, CHLORINATED ORGANIC COMPOUND, ORGANOGERMANIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/2040 STEP NO--UR/0076/70/044/003/0832/0832

CIRC ACCESSION NO--AP0132297

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0132297

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HNET SUB2 REACTED WITH GECL SUB4 IN CYCLOHEXANE TO GIVE (ET SUB2 N) SUB3 GECL (I). BY STATIC AND DYNAMIC METHODS THE VAPOR PRESSURE OF I AT 90-220DEGREES WAS DETD. TO SATISFY THE EQUATION LOG RHO EQUALS A MINUS B (C PLUS T) WHERE A EQUALS 6.99841, B EQUALS 1841.2414, C EQUALS 174.95, AND TAU IS THE TEMP. (DEGREESC). EXTRAPOLATED B.P. OF I WAS 272.2DEGREES, AND DELTAETA PRIME760 SUBVAP EQUALS 12.5 KCAL PER MOLE, DELTAS PRIME760 SUBVAP EQUALS 22.9 EU. FOR ET SUB3 GENET SUB2 (II) A EQUALS 7.41782, B EQUALS 1984.0035 AND C EQUALS 229.98. EXTRAPOLATED B.P. OF II IS 207.3DEGREES, DELTAETA PRIME760 SUBVAP EQUALS 11 KCAL PER MOLE, AND DELTAS PRIME760 SUBVAP EQUALS 22.9 EU. FACILITY: MOSK. KHIM.-TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 616.932-08-036.8:612.013.1

NIKIFOROV, V. N., POKROVSKIY, V. I., BULYCHEV, V. V., MALEYEV, V. V., KUPRIYCHUK, A. B., KUCHEROVA, T. P., BALASHEV, V. I., KOL'YAKOVA, T. A., and VEVYUR, N. A., Scientific Research Institute of Epidemiology, Ministry of Health USSR

"Restoration of Homeostasis in Cholera Patients Receiving Rehydration Therapy"

Moscow, Sovetskaya Meditsina, No 9, 1971, pp 114-120

Abstract: Normalization of disturbances of homeostasis in cholera patients is achieved by careful monitoring of the effects of rehydration therapy. Various indices of homeostasis -- physicochemical properties of the blood, acid-base equilibrium of arterial and venous blood, clotting, etc. -- were investigated in 58 patients with Asiatic cholera before and during rehydration with the standard No 1 solution (5 g NaCl, 4 g $NaHCO_3$, and 1 g KCl per liter of apyrogenic water). The disturbance of homeostasis before treatment was marked by increased specific gravity of plasma, viscosity, and hematocrit and decreased volume of circulating plasma. Changes in the acid-base equilibrium and blood gases were manifested by signs of compensated respiratory alkalosis, metabolic compensated acidosis, and stagnant hypoxemia. Disruption of the movement of blood electrolytes was accompanied by decreased concentration of potassium,

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NIKIFOROV, V. N., et al., Sovetskaya Meditsina, No 9, 1971, pp 114-120

sodium, and chlorine. Fibrinolysis, clotting, recalcification, and heparin time increased while the prothrombin index and fibrinogen increased.

2/2

Acc. Nr: AP0036758 Abstracting Service: CHEMICAL ABST. 4-70 K Ref. Code: UR 0068

78550k **Preparation of mesitylene and durene by the isomerization and disproportionation of pseudocumene.** Kolyandr, L. Ya.; Privalov, V. E.; Fomenko, G. M.; Nikitina, K. A.; Lokshina, L. S.; Kochergin, V. A.; Khvatkov, N. M.; Krishtopa, A. P.; Bilym, L. M.; Grebinnik, Z. G. (Kadiev. Koksokhim. Zavod, Kadievka, USSR). *Koks Khim.* 1970, (1), 33–40 (Russ). 1,2,4-$Me_3C_6H_3$ (I) of 90–5% purity was prepd. by rectifying coke chem. solvents (20–35 and 10–20% $Me_2C_6H_4$, 4–6 and 3–5% *m* + *p*-EtC_6H_4Me, 15–17 and 10–12% 1,3,5-$Me_3C_6H_3$ (II), 1–1.2 and 0.7–0.9% *o*-EtC_6H_4Me, 16–18 and 12–14% I, 1–2 and 2–3% 1,2,3-$Me_3C_6H_3$, 2–6 and 1–3% satd. hydrocarbons, and 0 and 2–3% unsatd. compds.) on columns having 50 theoretical plates at a reflux no. of 60–100. Isomerization and disproportionation in the presence of 30% of an $AlCl_3$·I complex at 127° for 3 hr in exptl. app. yielded 4.00% C_6H_6–PhMe-satd. compds., 17.27% $Me_2C_6H_4$, 17.02% II, 36.09% I, and 10.71% durene (III). Yields in plant runs were similar. Rectification of the II fraction on a lab. column having 75 theoretical plates at a reflux no. of 80–100 yielded II of 97.5% purity in 39.24% yield. After rectification to increase III concn. to 45.94% in the III fraction, recrystn. at 5 to −18° yielded III of ~82% purity and further recrystn. with 35% PhMe gave III of ~97% purity in ~85% yield (17% selectivity from I and 1.6% from the coke chem. solvent). Lucile S. Davison

REEL/FRAME
19721671

USSR

UDC 539.32:536.244

KOLYANO, YU. M., SEMERAK, M. M., Physicomechanical Institute, Academy of Sciences UkrSSR, L'vov

"Dynamic Problem in Thermoviscoelasticity for a Semi-Infinite Plate Considering the Rate of Heat Propagation"

Kiev, Problemy prochnosti, No. 8, Aug 71, pp 27-29

Abstract: An isotropic viscoelastic semi-infinite plate free of any external load is discussed under a situation where the side surfaces of the plate undergo heat exchange with the external medium in accordance with Newton's law. At time zero the boundary value of the plate temperature changes by a certain value and subsequently remains constant. The non-steady-state temperature field in the plate is obtained using a Laplace transformation and the heat conductivity equation of the hydrobolic type for determining the generalized plane temperature field. Dynamic temperature stresses caused by the temperature field are determined and the effect of a finite rate of heat propagation on the distribution of dynamic temperature stresses in a semi-infinite plate made of aluminum is determined on the basis of the analysis. Calculations show that consideration of the viscoelastic properties of the plate leads to a decrease in the maximum

USSR

KOLYANO, YU. M., SEMERAK, M. M., Problemy prochnosti, No. 8, Aug 71, pp 27-29

dynamic temperature stresses calculated considering and without considering the finite rate of heat propagation.

USSR

UDC: 621.384.326.22

DUHLER, G. Ya., Candidate of Sciences, and KOLYASIN, B. A.

"Stabilizing the Sensitivity of Pulsed Optical-Electronic Instruments"

Leningrad, Optikomekhanicheskaya promyshlennost', No 4, 1972, pp 10-12

Abstract: To improve the stability of the signal sensitivity of optical-electronic devices, the authors propose the insertion of an automatic gain control system into the electronic tract to vary the transfer factor of the tract in accordance with the change in signal sensitivity of the receiver device. Two methods of effecting this arrangement are considered: the first, by pulse keying; the second, by continuous control. The defect of the first is that it does not take into account changes in the sensitivity in the time the field of view is observed; the second type eliminates this defect but requires continuous calibration of the receiver. A schematic diagram of the continuous control type for optical-electronic devices with pulse modulation is shown and its operation discussed.

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Pulse Technique

USSR UDC 621.391.883.2

DUMLER, G. Ya., Candidate of Sciences, and KOLYASIN, B. A.

"Efficiency of a Combined System of Pulse Signal Detection in Noise"

Leningrad, Optikomekhanicheskaya promyshlennost', No. 6, 1971, pp 15-18

Abstract: The method and results of an experimental investigation into equipment for the combined detection of pulse signals in noise are given. A block diagram of the combined system is presented and the functions of the various blocks explained. The purpose of this investigation is to obtain the detection characteristics and threshold specifications of the system, and to compare its sensitivity with that of other detection arrangements. As defined here, the threshold specification is the signal/noise ratio at the input to the first threshold stage, at a fixed correct detection probability and an average period of false alarms without a signal, as a function of the number of pulses in the packet. A description is given of the method for plotting the detection characteristic. The authors conclude that the algorithm on which the system is based can be used in systems in which a binary accumulator, applied with advantage in the present system, cannot be included.

KOLYASKINA, G. I.

50: JPRS 53378
16 June 71

UDC: 616.895.8-008.9

BIOLOGICAL FACTORS IN SCHIZOPHRENIA

[Article by G.I. Kolyaskina, R.R. Lideman, D.V. Lozovskiy, D.D. Orlovskaya, Institute of Psychiatry, USSR Academy of Medical Sciences, Moscow; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 5, May 1971, pp 59-62]

An attempt is made in this article to summarize the results of multidisciplinary investigation of the biological distinctions of the organism of schizophrenics, and first of all of the biological distinctions of their blood as related to the type of course of this disease. The premise for such a summary consisted of the earlier works by the present authors and other members of the laboratory of general pathophysiology of the Institute of Psychiatry, USSR AMS, which demonstrated that in the blood serum of schizophrenics there are anomalous metabolites involved in formation of some important links in the pathogenesis of this disease. Distinctive immunological changes were demonstrated, as well as functional and morphological changes in formed blood elements (M.Ye. Vartanyan, 1969).

All of the biological studies were conducted on homogeneous clinical material. The patients were under standard clinical conditions and had not received therapy for at least three weeks prior to the study. They were selected in accordance with the classification adopted at the Institute of Psychiatry, USSR AMS, in which schizophrenia is divided into continuous, sporadic-progressive, and periodic (recurrent) types; in turn, continuous schizophrenia is subdivided into malignant (nuclear), paranoid, and sluggish forms. The results of the biological tests were compared with the clinical characteristics reflecting the distinctive features in the course of the disease.

All of the results of investigation of the manifestations of biological activity of blood serum of schizophrenics could be subdivided into two main groups; the first includes effects typical for the biological action of blood serum of patients with all three types of schizophrenia (continuous, sporadic [in attacks] progressive, and periodic); and the second consisted of effects typical only for the action of serum from patients with continuous schizophrenia.

USSR

UDC 621.391.63

AVTONOMOV, V. A., BORISOV, B. S., GRUDININ, A. S., VARLAMOV, I. V., KANDYBA, Pe, Ye., KOLYASNIKOV, V. A., KRASYUK, B. A., MESKIN, S. S., PETRUSEVICH, V. A., POLTORATSKIY, E. A., RAVICH, V. N., and CHICHERIN, L. A.

"High-Spped Optical-Electronic Switch"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronics Technology. Scientific-Technical Collection. Microelectronics), 1971, Issue 2(28), pp 3-8 (from RZh-Elektronika i yeye primeneniye, No 8, August 1971, Abstract No 8B321)

Translation: An optical-electronic pair is developed, on the basis of which a hybrid microcircuit is produced which assures a high galvanic decoupling and is compatable with respect to the input and output parameters with integrated logic circuits manufactured by domestic industry. 4 ill. 4 ref. Summary.

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USSR

UDC (083.74) 669.14

VINOGRAD, M. I., KISELEVA, S. A., PAVPEROVA, I. A., APOLOVNIKOVA, L. G., KOLYASNIKOVA, R. I. and BUSHINA, E. G.

"New Standard for Metallographic Determination of Nonmetallic Inclusions in Steel"

Moscow, Standarty i kachestvo, No 2, Feb 72, pp 28-30

Abstract: Described is the newly announced GOST 1778-70 for the metallographic determination of impurities in metals replacing GOST 1778-62 which, in addition to other drawbacks, was inadequate to determine reliably the difference in the degree of contamination between individual heats. The need for the new standard has also been prompted by new steelmaking methods and high-purity requirements on top-grade metals. Compared to similar foreign standards, the new GOST 1778-70 features the following advantages: a scale providing strict classification of inclusions by composition and covering a wider variety, including nitrides; a x200 magnification permitting more accurate rating of impurities in pure metal than the "IK" scale in the American ASTM E-45-63; an examination area of sections for the "Sh" method adopted as 400 ±50 mm^2 (the same area in ASTM E-45-63 is only 200 mm^2; the standard includes measuring and calculation systems (not available on foreign standards) some of which are suitable for determining impurities in both formed and cast metals;

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USSR

VINOGRAD, M. I., et al, Standarty i kachestvo, No 2, Feb 72, pp 28-30

detailed patterns for cutting test pieces for the greatest majority of metallurgical items (only a few are available on foreign standards). 2 tables, 6 bibliographic references)

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USSR

KOLYBASOV, V. M., SMORODINSKAYA, N. Ya., Institute of Theoretical and Experimental Physics, State Committee on the Use of Nuclear Power

"Polarization Effects in (p, 2p) Reactions"

Moscow, Yaderneya Fizika, Vol 15, No 3, Mar 72, pp 483-490

Abstract: Expressions are found for asymmetry and polarization of the recoil nuclei in (p, 2p) reactions. The amplitude of the reaction is represented by the sum of a polar term and a certain additional term which approximates the contribution from more complex figures. Separate consideration is given to two special cases: a) the asymmetric coplanar case; b) the case where only the magnitude and direction of the momentum of the recoil nucleus are recorded. A numerical estimate is given for the expected polarization and asymmetry of a number of specific nuclei using information on the real and imaginary parts of the additional term published previously. A discussion of the difficulties involved in measuring the polarization of the final nucleus shows that it would be more practical to measure the escape asymmetry of secondary particles in an experiment on a polarized target. The authors thank I. S. Shapiro for interest in the work and discussion of the results. One figure, bibliography of six titles.
1/1

1/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THEORY OF (PI PRIME POSITIVE, 2P) REACTIONS ON LIGHT NUCLEI -U-

AUTHOR-(02)-KOLYBASOV, V.M., LOMONOSOVA, T.A.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(3), 578-88

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LIGHT NUCLEUS, MESON INTERACTION, PION, PARTICLE PRODUCTION, PROTON, ANGULAR DISTRIBUTION, ENERGY SPECTRUM, EXCITATION CROSS SECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/1042 STEP NO--UR/0367/70/011/003/0578/0588

CIRC ACCESSION NO--AP0110732

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0110732

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBLEM OF THE MECHANISM OF (PI PRIME POSITIVE, 2P) REACTIONS ON LIGHT NUCLEI WAS TREATED. TWO OF THE SIMPLEST MECHANISMS: THE D AND THE ALPHA PARTICLES MECHANISMS ARE COMPARED. THE FOLLOWING QUANTITIES WERE OBTAINED: THE CROSS SECTION ENERGY DEPENDENCE OF THE (PI PRIME POSITIVE, 2P) REACTION, THE MOMENTUM AND ENERGY DISTRIBUTIONS OF RECOIL NUCLEI, THE ANGULAR CORRELATION OF 2 FAST P, THE ENERGY DISTRIBUTION OF THE RELATIVE MOTIONS OF W P, AND THE DISTRIBUTION OF THE SUMMARY IMPULSE AND ITS ANGLE UPON THE DIRECTION OF THE PI MESON. FURTHER, THE CHARACTERISTICS FO THE RESIDUAL NUCLEUS, AND THE ENERGY DEPENDENCE OF THE CROSS SECTION OF PRIME6 LI(PI PRIME POSITIVE, 2P) PRIME4 HE REACTION WERE ALSO STUDIED. K. AND L. COMPARE THE SENSIBILITY OF THESE PARAMETERS TO THE MECHANISM OF THE PROCESS. THE COMPARISON OF THE THEORETICAL AND EXPTL. RESULTS IS DIFFICULT, BECAUSE IN MANY EXPTS. THE EVENTS ON HEAVY AND LIGHT NUCLEI ARE NOT SEPD., AND IN OTHER CASES THE EXPTL. CONDITIONS ARE GIVEN WITHOUT THE GEOMETRY OF THE INSTALLATION. FACILITY: INST. TEOR. EKSP. FIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.039.57:663.6

KOLYCHEV, B.S.

Atom utolyayet zhazhlu. Izdaniye 2-ye, pererab (The Atom Quenches Thirst. Second Edition, Revised and Supplemented), Moscow, Atomizdat Press, 1970, 112 pp (from RZh-Teploenergetika, No 2, Feb 71, Abstract No 2U13K)

Translation: Several methods of water desalination are described. Various desalination methods, the problems in this area and means of solving them are discussed in popular form. It is demonstrated that atomic electric power plants operating in the dual-purpose mode and that reactors with expanded nuclear fuel breeding in the triple-purpose mode are sources of inexpensive heat for desalination. Plans for large-scale desalination plants using atomic electric power plant heat are investigated, and their utilization prospects are demonstrated. There are 38 illustrations, 4 tables and a 16-entry bibliography.

1/1

1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--EXISTENCE OF A MIXED HYDROXOACETATE COMPLEX OF URANYL IN AQUEOUS ACETATE NITRATE SOLUTIONS -U-

AUTHOR-(02)-NIKOLSKIY, B.P., KOLYCHEV, V.B.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(1), 89-96

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACETATE, URANIUM COMPOUND, COMPLEX COMPOUND, STABILITY CONSTANT, HYDROXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1204 STEP NO--UR/0186/70/012/001/0089/0096

CIRC ACCESSION NO--AP0128622

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128622

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CALCNS. BASED ON EXPTL. DATA ON THE SORPTION OF U (ON ANIONIC RESINS) FROM AQ. ACETATE SOLNS. (CONTG. 6 TIMES 10 PRIME NEGATIVE5 MINUS 15 TIMES 10 PRIME NEGATIVE3 G ION ACETATE-L.) AT PH 2.4-3.0 SHOW THAT SUCH SOLNS. CONTAIN A MIXED ACETATE HYDROXIDE COMPLEX UO SUB2(ACO) SUB2 (OH) SUB2 (I); THE STABILITY CONST. OF I IS 7 TIMES 10 PRIME24 AND THE MEAN PARTIAL STABILITY CONST. (FOR EACH HYDROXYL GROUP) IS SIMILAR TO 1.7 TIMES 10 PRIME10. THE EQUIL. CONST. OF THE REACTION LEADING TO THE FORMATION OF I FROM (UO SUB2 (ACO) SUB3) AND 2(OH) PRIME NEGATIVE HAS A VALUE OF 4.0 TIMES 10 PRIME18.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--HEMODYNAMIC INDICES IN PATIENTS WITH CHRONIC PNEUMONIA (METHOD OF DYE DILUTION) -U-

AUTHOR--KOLYCHEVA, N.I.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 2, PP 43-47

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEMODYNAMICS, PNEUMONIA, LUNG, HEART, DYE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1617 STEP NO--UR/0504/70/042/002/0043/0047

CIRC ACCESSION NO--AP0101677

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70
CIRC ACCESSION NO--AP0101677
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A TOTAL OF 86 PATIENTS WITH CHRONIC PNEUMONIA OF DIFFERENT STAGES IN THE PHASE OF EXACERBATION OF THE INFLAMMATORY PROCESS WERE EXAMINED. NO SUBSTANTIAL HEMODYNAMIC SHIFTS WERE REVEALED IN PATIENTS WITH STAGES I AND IIA (WITH A RESTRICTED PROCESS IN THE LUNGS). IN PATIENTS WITH STAGE IIB (WITH DIFFUSE PROCESS IN THE LUNGS) STATISTICALLY SIGNIFICANT DECELERATION OF THE BLOOD FLOW SPEED IN PULMONARY CIRCULATION, INCREASE OF STROKE VOLUME AND A TENDENCY TO A RISE IN THE MINUTE VOLUME OF THE HEART WERE OBSERVED. IN STAGE III OF CHRONIC PNEUMONIA ALONGSIDE A MARKED DECELERATION OF THE BLOODFLOW SPEED IN PULMONARY CIRCULATION THE AUTHOR FOUND A STATISTICALLY SIGNIFICANT DECELERATION OF THE BLOOD FLOW SPEED IN GREATER CIRCULATION, INCREASE OF THE BULK OF THE CIRCULATING BLOOD AND A DROP IN THE STROKE VOLUME. DYNAMIC STUDIES OF 51 PATIENTS WITH CHRONIC PNEUMONIA SHOWED THAT WITH ELIMINATION OF EXACERBATION OF THE INFLAMMATORY PROCESS IN THE LUNGS THE HEMODYNAMIC INDICES HAD A TENDENCY TO NORMALIZATION.

UNCLASSIFIED

Nuclear Science and Technology

USSR

UDC 621.039.52

KRASIN, A. K., NESTERENKO, V. B., KOLYKHAN, L. I., BUBNOV, V. P., IL'IN, A. YA., SILZOV, V. P., and SHUFROV, YU. V.

"Experimental Powder Installation With Gas-Cooled Fast-Neutron Reactor and Dissociating Heat-Transfer Medium (BRG-20)"

Dissotsiiruyushch. Gazy kak Teplonositeli i Rab. Tela Energ. Ustanovok' (Dissociating Gasses as Heat Transfer Media and Working Fluids of Power Installations — collection of works), Minsk, Nauka i Tekhn. Press, 1970, pp 42-47 (from Referativnyy Zhurnal-Yadernyye Reaktory, No 4, 1971, Abstract No 4.50.134)

Translation: The possibility is studied of creating an experimental pilot scale atomic power plant with a gas-cooled fast-neutron reactor with dissociating coolant. The parameters of the installation and required volume of experimental study are discussed. 2 figures, 4 biblio. refs.

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USSR UDC 621.039.524.034.3:621.039.526

KRASIN, A. K., NESTERENKO, V. B., KOLYKHAN, L. I., BUBNOV, V. P., IL'IN, A. YA., SLIZOV, V. P., SHURFROV, YU. V.

"Experimental Power Plant with a Gas Cooled Fast-Neutron Reactor and a Dissociating Heat Transfer Agent (BRG-20)"

Dissotsiiruyushch. gazy kak teplonositeli i rab. tela energ. ustanovok -- V sb. (Dissociating Gases as Heat Transfer Agents and the Working Medium of Power Plants -- Collection of Works), Minsk, Nauka i Tekhn. Press, 1970, pp 42-47 (from RZh-Elektrotekhnika i Energetika, No 5, May 1971, Abstract No 5U107)

Translation: The possibility of creating an experimental industrial atomic power plant with a gas-cooled fast neutron reactor and a dissociating heat exchange agent is investigated. The parameters of the device and the required volume of experimental research are discussed. There are two illustrations and a four-entry bibliography.

1/1

USSR

UDC: 536.246

BAKALIN, Yu. I., GOLUBENKO, G. G., KOLYKHAN, L. I., SEN'KO, A. S., SOLOV'YEVA, V. N.

"Results of an Experimental Study of Heat Exchange During Boiling of Nitrogen Tetroxide in a Vertical Tube"

V sb. Dissotsiruyushch. gazy kak teplonositeli i rab. tela energ. ustanovok (Dissociating Gases as Heat-Transfer Agents and Working Fluids in Power Plants--collection of works), Minsk, "Nauka i tekhn.", 1970, pp 289-293 (from RZh-Aviatsionnyye i raketnyye dvigateli, No 3, Mar 71, Abstract No 3.34.118)

Translation: A description is presented of the experimental installation, measurement procedure and data processing method. Results are given from a study of heat exchange during boiling of N_2O_4 in a vertical tube with natural circulation in the pressure region of 2-50 absolute atmospheres under thermal loads of $(0.4-0.6) \times 10^5$ kcal/m^2·hr. It is noted that heat exchange during boiling of a chemically reacting system differs considerably from heat exchange during boiling of pure inert substances. Three illustrations, bibliography of five titles. Resumé.

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USSR

UDC 547.26'118

KADYROVA, V. KH., KIRPUCHNIKOV, P. A., MUKMENEVA, N. A., GREN, G. P., and KOLYBAKINA, M. S., Kazan' Institute of Chemical Technology imeni S. M. Kirov

"New Thermostable Phosphite Esters"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, pp 1688-1691

Abstract: A study of the synthesis of phosphite esters possessing increased hydrolytic and thermal stability showed that such phosphites can be obtained by condensation of various bisphenols with trivalent phosphorus derivatives. The thermostability of the synthesized compounds was studied by the differential thermal analysis method using a derivatograph of the F. PAULIK-J. PAULIK-L. ERDEY System. It was found that thermal decomposition begins only at temperatures above 300°.

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1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT7(

TITLE--PHOSPHOROUS ACID ESTERS AS COLORLESS STABILIZERS OF LOW PRESSURE POLYETHYLENE -U-

AUTHOR-(05)-KIRPICHNIKOV, P.A., KOLYUBAKINA, N.S., MUKHENEVA, N.A., MUKHENEV, E.T., VORKUNOVA, E.I.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN. SER. B 1970, 12(3), 189-92

DATE PUBLISHED----------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, CHEMICAL STABILIZER, HETEROCYCLI(BASE COMPOUND, POLYETHYLENE, ORGANIC SULFUR COMPOUND, ANTIOXIDANT ADDITIVE, SULFIDE, PHENOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0669 STEP NO--UR/0460/70/012/003/0139/0192

CIRC ACCESSION NO--AP0124341

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--30OCT7

CIRC ACCESSION NO--AP0124341

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF P CONTG. COMPDS., (RO)SUB3 P (R IS ET, BU, HEXYL, NONYL, PH, OR ISO BUC SUB6 H SUB4), I, II, OR III (R PRIME IS ISOOCTYL), TO LOW PRESSURE POLYETHYLENE (IV) ALS CONTG. ANTIOXIDANTS (BIS(5,METHYL, 3,TERT,BUTYL,2,HYDROXYPHENYL) SULFIDE, BIS(5,METHYL,3,TERT,BUTYL,2,HYDROXY) METHANE, OR 2,6 BIS(ALPHA METHYLBENZYL),4,METHYLPHENOL) INHIBITED COLOR FORMATION DURING HEATING IV IN AIR AT 190DEGREES OR 200DEGREES. THE P CONTG. COMPDS. REACTED WITH THE RESIDUAL TI CATALYSTS, PREVENTING THEIR COLOR REACTION WITH TH ANTIOXIDANTS. FACILITY: KAZAN. KHIM. TEKHNOL. INST. IM. KIROVA KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 539.1.073.7

KALASHNIKOVA, V. I., KOLYUBIN, A. A., and LEMESHKO, B. D.

"The Possibility of Controlling the Sensitivity of Photographic Emulsions by an Electric Field"

Moscow, Pribory i Tekhnika Eksperimenta, March-April 1973, pp 76-78

Abstract: This article investigates the possibility of controlling the sensitivity of photographic emulsions by an electric field when the emulsions are used for recording ionizing particles and when the activity considered involves observations of radiation from a nuclear phenomenon occurring at random moments of time. Under these circumstances, the sensitivity of the emulsion can be increased by applying a high-voltage pulse, synchronized with the event of the nuclear phenomenon. Experiments with photographic layers of the FT-101 type of emulsion under irradiation by protons with an energy of 100 Mev were performed with the emulsion in an electric field. At the same time the beam of protons was turned on, a high-voltage pulse lasting 50 μs was applied to the emulsion. Control emulsions subject to the same proton irradiation but without benefit of the electric field were also developed. Photographs of both types of specimen are produced. It is concluded that a photographic emulsion can be used as track detector with controllable sensitivity.

1/1

Simulations

USSR

UDC: 51

SVIRIDOV, V. V., KOLYUSHENKOV, A. K.

"Definition of the Goal Function and Criterion of Effectiveness for a Certain Class of Network Systems"

Pribory i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Automation Devices and Systems. Republic Interdepartmental Thematic Scientific and Technical Collection), 1973, vyp. 27, pp 30-36 (from RZh-Matematika, No 9, Sep 73, abstract No 9V581 by the authors)

Translation: The paper notes the advantages and disadvantages of PERT methods. A definition is given of the network function and criterion of effectiveness for a certain class of netowrk systems. The problem of controlling a set of operations is mathematically formulated. The method of dynamic programming is used in deriving the functional equation. The guaranteed probability of attaining the goal is taken as the criterion of effectiveness of operation of the control system.

1/1

USSR

UDC: 51

SVIRIDOV, V. V. and KOLYUSHENKOV, A. K.

"An Algorithm for Optimal Distribution of Resources in Complex Systems With a Specified Quality Function"

Pribory i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Automation Systems and Instruments, Republic Interdepartmental Thematic Scientific-Technical Collection) No 26, 1973, pp 96-99 (from RZh--Matematika, No 7, 1973, Abstract No 7V559)

Translation: The problem of optimizing the distribution of resources in planning and controlling complex operations is considered. The technological order of doing the work is determined by a grid graph. From the authors' introduction.

1/1

USSR

UDC 531.768:621.385.1

BERLIN, G. S. and KOLYUSHEV, B. P.

"Highly Sensitive Mechanotron Accelerometers"

Moscow, Izmeritel'naya Tekhnika, No 5, May 1973, pp 39-42

Abstract: A mechanotron accelerometer is an inertial instrument made in the form of an electron tube with mechanically controllable electrodes; the electrodes can be constructed with internal control or can be controlled externally. Such instruments are used for measurement of the accelerations of moving objects and seismic processes, as well as for the recording of very low acceleration rates (on the order of about 0.01 g). Design variants of mechanotron accelerators with external and internal control, with and without a damping device, are described; these instruments provide for the measurement of accelerations within the ranges of 0-0,1 g, 0 - 1 g, 0 - 10 g, and 0 - 50 g, with an error of 3-5%. 2 tables. 3 figures, 4 references.

1/1

USSR

UDC 621.317.741(088.8)

NIKOLAYEV, V. V., KOLYVANOVA, S. F.

"Small Waveguide Reflectometer"

USSR Author's Certificate No 252422, Filed 29 Mar 68, Published 6 Feb 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A158P)

Translation: A small waveguide reflectometer consisting of a segment of a rectangular waveguide and four rotating detector heads in round out-of-bounds waveguides the axes of which are perpendicular to the wide walls of the waveguide segment is proposed. The reflectometer is distinguished by the fact that its detector heads are arranged symmetrically in one cross section of the rectangular waveguide, and they are connected with the rectangular waveguide by cross-shaped slots partially covered by dielectric inserts which rotate simultaneously toward different sides. This offers the possibility of measuring the amplitude and phase of the rotation factor simultaneously and increasing the operating frequency range.

1/1

USSR

UDC 621.314.56

PETROV, YA. V., [illegible], LYSENKO, S.N.

"Investigation With The Help Of An Analogue Machine Of Transients During Short-Circuit In The Circuit Of A Compensated Ferromagnetic Frequency Tripler"

Izv. Tomsk. politekhn. in-ta (Bulletin Of The Tomsk Polytechnical Institute), 1970, 211, pp 43-47 (from RZh--Elektroniks i yeye primeneniye, No 2, February 1971, Abstract No 2B561)

Translation: Danger of a short circuit in a ferromagnetic frequency tripler involves overvoltages of the capacitors and windings of the converters. Consequently, for computation of the insulating strength of the windings and choice of the magnitude of the working voltage of the capacitors, it is necessary to know the potential limiting currents for a short circuit of the tripler. For analysis of a short-circuit regime, expressions are obtained for currents of transient and steady regimes. A block diagram of the device is shown. Results of analysis show that currents of a 3-phase short circuit exceed the currents of a 2-phase short circuit by 1.1--1.5 times. 3 ill. 2 ref. V.Sh.

1/1

USSR

UDC: 681.333.519.2

DOLGOV, G. S., KOMANDROVSKIY, V. G., PETROSYANTS, A. A., and STEPIN, Yu. P. (I. M. Gubkin Institute of Oil Chemistry and Gas, Moscow)

"Device for Digital Recording of a Stationary Random Process"

Avt. sv. SSSR. kl. G 06 g 7/52, No 338909, zayavl. 6.11.70, opubl. 16.06.72 (Author's Certificate, USSR, class G 06 g 7/52, No 338909, claimed 6 November 1970, published 16 June 1972) from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 2, 1973, Abstract No 2A457P)

Translation: A device is proposed for the digital recording of a stationary random process, containing a random signal sensor, a registration unit, a signal unit random in follow-up time and single-signalled per cycle of registration unit operation, a unit for controlling the transmission time, and a general control unit. Three illustrations.

1/1

USSR

UDC: 621.384.634.3

IVANOV, D. P., KOMAR, A. P., and KOROBOCHKO, Yu. S.

"Dynamics of Electron Capture in the Betatron"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, vol. 41, No. 4, April 1971, pp 770-771

Abstract: This paper is a follow-up of a preceding article written by the last two authors named above in the Reports of the Academy of Sciences USSR (DAN SSSR, Fizika, No. 4, 1958, p 123) in which a mechanism for electron capture in betatron acceleration was proposed, based on the resonance coincidence of electron radial oscillation frequencies and the periodically changing Coulomb repulsion forces among the beam particles. Processing of the experimental data indicates that the curve of the current circulating in the chamber as a function of the injection current is nonmonotonic. On the basis of this observation, the authors of the present article theorize that the break in this curve corresponds to the optimal value of the injection current at which the

1/2

USSR

IVANOV, D., et al., Zhurnal Tekhnicheskoy Fiziki, Vol 41, No 4, Apr 71, pp770-771

gamma-ray output provided by the accelerator is a maximum. They also specify three frequencies at which the capture of electrons at resonance is most effective, provided their idea of the capture mechanism is valid. They are members of the Leningrad Polytechnical Institute imeni M. I. Kalinin.

2/2

USSR

UDC: 537.531

KOMAR, A. P., KOROBOCHKO, Yu. S., MINEYEV, V. I., and PETROCHENKO, A. F.

"Bremsstrahlung of Electrons With Energies of 7-10 Mev in Thin Silicon Crystals"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, vol. 41, No. 4, April 1971, pp 807-814

Abstract: The purpose of the experiments described in this paper is to make a more detailed study of the radiation spectra produced by a stream of electrons of 7-10 Mev of energy braked by a target of thin crystalline silicon and to compare the experimental results with those of theoretical calculations. The spectral measurements were made on an LPI betatron with a maximum energy of 15 Mev; the target, 7-11 microns thick, was placed in the betatron chamber so that the direction of the incident electrons and the axis of the braked radiation beam coincided

1/2

USSR

KOMAR, A. P., et al., Zhurnal Tekhnicheskoy Fiziki, Vol 41, No 4, Apr 71, pp 807-814

with the /110/ direction of the crystal. A collimator inside the chamber reduced the angular dispersion of the electrons to the target. The axial part of the output bremsstrahlung was conducted through a system of lead collimators to a scintillation spectrometer. A block diagram of the equipment is shown and a detailed description given.

2/2

USSR

KOMAR, A. P.; KOROBOCHKO, Yu. S. (Leningrad Polytechnical Institute im. M. I. Kalinina)

"Bremsstrahlung of Relativistic Electrons in Crystals"

Leningrad, Fizika Tverdogo Tela; January, 1971; pp 245-51

ABSTRACT: A classical treatment is given the mechanism of the occurrence of coherent effects in the bremsstrahlung of electrons in crystals. It is shown that when individual atomic chains in thin crystals are subjected to radiation, it is possible to obtain spectra which are qualitatively the same (with the exception of polarization) as in the ultrarelativistic energy range of primary electrons. Formulas for the coherent and noncoherent components of the spectrum can be obtained in a form similar to the Schiff spectrum. The problem of the form of the coherent lines in the radiation spectrum is considered.

The article includes 5 equations, 4 figures, and a table showing a number of parameters for different materials used as targets. There are 20 references.
1/1

USSR

K

UDC 539.144.6:539.1.083

KOMAR, A. P., Academician of the Academy of Sciences Ukrainian SSR, VOROB'YEV, A. A., ZALITE, YU. K., and KOROLEV, G. A., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR, Leningrad

"Lifetimes of Excited Nuclear States Occurring in Alpha-Decay of Ra-223 and Bi-211"

Moscow, Doklady Akademii Nauk SSSR, Vol 191, No 1, 1970, pp 61-63

Abstract: Existing methods for measuring the short lifetimes of excited states in the region of heavy alpha-active nuclei have a number of important limitations. The authors used a microwave method developed in their laboratory. The device consists of two time superhigh-frequency shutters -- for alpha particles and for conversion electrons e_c, a time-delay system between the shutters, and the measuring apparatus. The source, set on thin (5-micron) aluminum foil, is placed between modulating resonators. A double-focusing magnetic-sector beta spectrometer, with a pulse resolution of 0.75 percent, is tuned to the conversion line peak. When the superhigh-frequency modulation is switched on, the energy of e_c flying through the resonator gap changes

1/2

USSR

KOMAR, A. P., et al., Doklady Akademii Nauk SSSR, Vol 191, No 1, 1970, pp 61-63

according to the superhigh-frequency phase. As a result, the detector of the beta spectrometer records only those e_c which did not change their energy. The time shutter for the alpha particles is another resonator which simulates the energy of secondary-emission electrons formed by alpha particles during passage through the foil and accelerated in the gap between the foil and the resonator to $\sim$2 kev. As they pass through the resonator, the electrons are analyzed for energy with the aid of an electrostatic analyzer and an open-type electron multiplier. Chosen for the lifetime measurement were the level 269 kev of Rn-219, formed in alpha-decay of Ra-223, and the level 350 kev of Tl-207, formed in alpha-decay of Bi-211.

The authors thank B. V. GRIGOR'YEV, A. K. LEBEDEV, and V. A. SMIRNOV for their assistance in the work and A. I. YEGOROV and L. M. VASIL'YEVA for preparing the sources.

2/2

USSR

UDC 539.173.3

KOMAR, A. P., Academician of the Academy of Sciences Ukrainian SSR, BOCHAGOV, B. A., KOTOV, A. A., SEMENCHUK, G. G., and SOLYAKIN, G. YE., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR, Leningrad

"Nucleonic Composition and Excitation Energies of Fissioning Nuclei in Irradiation of Bi-209, Pb-208, and Au-197 Targets With Photons With Energy $E_{\gamma max}$ = 1 Gev"

Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 6, 1970, pp 1308-1311

Abstract: The authors determine the nucleonic composition A,Z and excitation energy E_{exc} of fissioning nuclei by using data on fission product characteristics, particularly the effect of a decrease in the kinetic energy of fragments with the escape of neutrons from them and the calculation of the mass and energy distributions of fragments at a given nucleus temperature. The article uses results relating only to light Bi-209 and Au-197 target nuclei, cited in an earlier

USSR

KOMAR, A. P., et al., Doklady Akademii Nauk SSSR, Vol 190, No 6, 1970, pp 1308-1311

article by the authors, as well as new data for a Pb-208 target and refined data for an Au-197 target calibrated according to Cf-252 fragments. The initial formula for the authors' calculations was the Seaborg-Viola formula for the mean kinetic energy of fragments E_k^i prior to escape of neutrons from them.

2/2

1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--LIFETIMES OF EXCITED NUCLEAR STATES ARISING DURING THE ALPHA DECAY OF RADIUM-223 AND BISMUTH-211 -U-

AUTHOR-(04)-KOMAR, A.P., VOROBYEV, A.A., ZALITE, YA., KOROLEV, G.A.

COUNTRY OF INFO--USSR

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING A MICROWAVE METHOD, THE HALF LIFE OF THE EXCITED STATE OF THE 269 KEV LEVEL IN THE ALPHA DECAY OF PRIME223 RA TO PRIME219 RN WAS DETD. AS 27 PLUS OR MINUS 3 PSEC, AND THE MEAN HALF LIFE OF THE 350 KEV LEVEL IN PRIME211 BI TO PRIME207 TL AS 0.43 PLUS OR MINUS 0.1 PSEC. FOR PRIME207 TL, FIRST EXCITED AND GROUND STATE SPIN VALUES OF 3-2 PLUS AND 1-2 PLUS WERE ASSIGNED ANDIDENTIFIED AS 2D 3-2 AND 3S 1-2, RESP. FACILITY: FIZ.-TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

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